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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/723,292	11/28/2000	Satoshi Kajiya	2611-0136P	5509

7590 01/12/2005  
BIRCH, STEWART, KOLASCH & BIRCH, LLP  
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Falls Church, VA 22040-0747

EXAMINER

BELLO, AGUSTIN

ART UNIT	PAPER NUMBER
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2633

DATE MAILED: 01/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

GA

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/723,292	KAJIYA ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Agustin Bello	2633	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

**A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.**

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 August 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) 7-10, 13-16 and 20-25 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6, 11, 12 and 17-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election without traverse of Species I and Subspecies A in the reply filed on 8/13/04 is acknowledged. Furthermore, the examiner acknowledges that claims 1 and 11 are generic.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-2, 11-12, and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Nishio (U.S. Patent No. 5,170,273).

Regarding claims 1, 11, 12, Nishio teaches a first optical fiber transmission path (e.g. fiber between reference numerals 120 and 130 in Figure 3) for a wavelength division multiplexed signal to be input therefrom; a second optical fiber transmission path (e.g. fiber between reference numerals 121 and 131 in Figure 3) having a zero-dispersion wavelength different from the first optical fiber transmission path (inherent in the wavelength conversion that takes place at converters 150-152 in Figure 3); and an optical repeater (e.g. repeater between reference numerals 130 and 121 in Figure 3) which receives the wavelength division multiplexed signal from said first optical fiber transmission path, wavelength-converts (e.g. via wavelength converters 150-152 in Figure 3) the received signal with respect to respective wavelengths thereof so as to minimize SPM-GVD effect and FWM in the second optical fiber transmission

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path in accordance with the zero-dispersion wavelength (inherent when matching the input wavelength with the zero-dispersion wavelength of a fiber), and outputs the wavelength-converted signal to said second optical fiber transmission path.

Regarding claim 2, Nishio teaches that said optical repeater is configured to shift, by a predetermined value, all wavelengths of the wavelength division multiplexed signal (as noted in Figure 3).

Regarding claim 17, Nishio teaches that the wavelength converter comprises: an opto-electrical converter (reference numeral 210 in Figure 4) configured to convert the input wavelength signal to an electrical signal; and an electro-optical converter (reference numeral 230 in Figure 4) configured to convert the electrical signal from the opto-electrical converter to the output wavelength signal, wherein a wavelength of the input wavelength signal is different from a wavelength of the output wavelength signal (e.g.  $\lambda_i$  to  $\lambda_j$  in Figure 4).

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 3-6 and 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishio.

Regarding claims 3-6, Nishio differs from the claimed invention in that Nishio fails to specifically teach that the optical repeater is configured to accept and produce the variety of signals claimed. However, one skilled in the art would clearly have recognized the ability to

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configure the repeater of Nishio in a variety of manners including those claimed by the applicant. Furthermore, being that there is no structural difference between the repeater of Nishio and that of the claimed invention, it is clear that the repeater of Nishio would have been capable of handling the variety of configurations claimed by the applicant. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to configure the repeater of Nishio in the variety of ways claimed.

Regarding claim 18, Nishio differs from the claimed invention in that Nishio fails to specifically teach that said opto-electrical converter is one of a photo-diode, an avalanche photo-diode, and a photo-counter. However, all three photodetecting elements claimed are very well known in the art and readily available. One skilled in the art would have been motivated to employ any of the claimed elements in Nishio in order to meet cost or design limitations. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to employ any one of a photo-diode, an avalanche photo-diode, and a photo-counter in the system of Nishio.

Regarding claim 19, Nishio differs from the claimed invention in that Nishio fails to specifically teach that said electro-optical converter is a semiconductor laser. However, the use of semiconductor lasers as electro-optical converters is well known in the art. One skilled in the art would have been motivated to employ a semiconductor laser in the device of Nishio in order to meet cost or design limitations. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to employ a semiconductor laser in the system of Nishio.

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***Conclusion***

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Okayama discloses relevant art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Agustin Bello whose telephone number is (571) 272-3026. The examiner can normally be reached on M-F 8:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571)272-3022. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AB

Agustin Bello  
Examiner  
Art Unit 2633



AGUSTIN BELLO  
PATENT EXAMINER